Shipping Hazardous Materials by Rail

Gary Burke

Hazardous Materials

Railroad Safety Inspector

Kingsport, Tennessee

Department of Transportation Modal Administrations

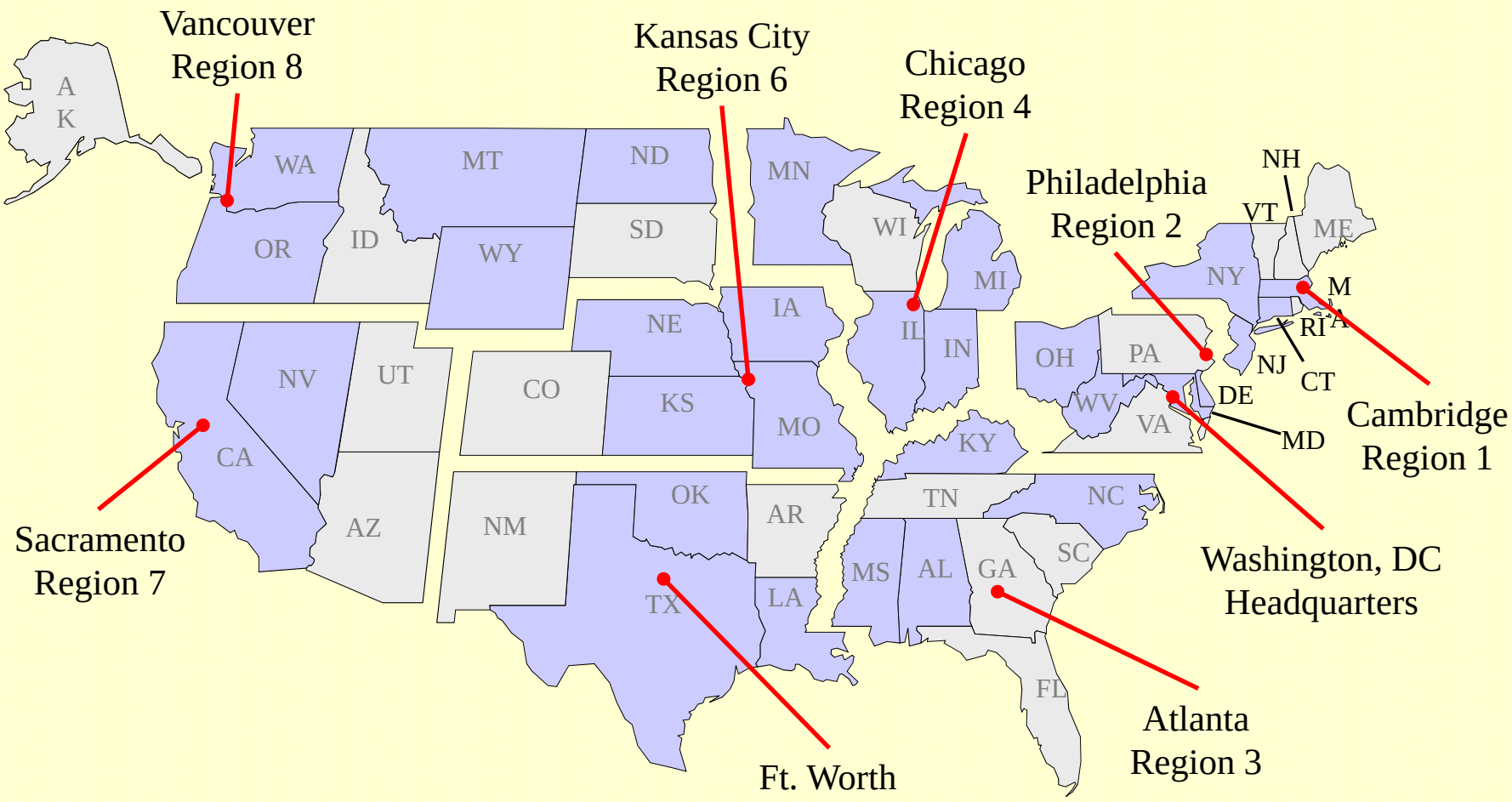
- Federal Aviation Administration
- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- ***Federal Railroad Administration***
- Federal Transit Administration
- Maritime Administration
- National Highway Traffic Safety Administration
- Pipeline & Hazardous Materials Safety Administration
- Bureau of Transportation Statistics
- St. Lawrence Seaway Development Corporation

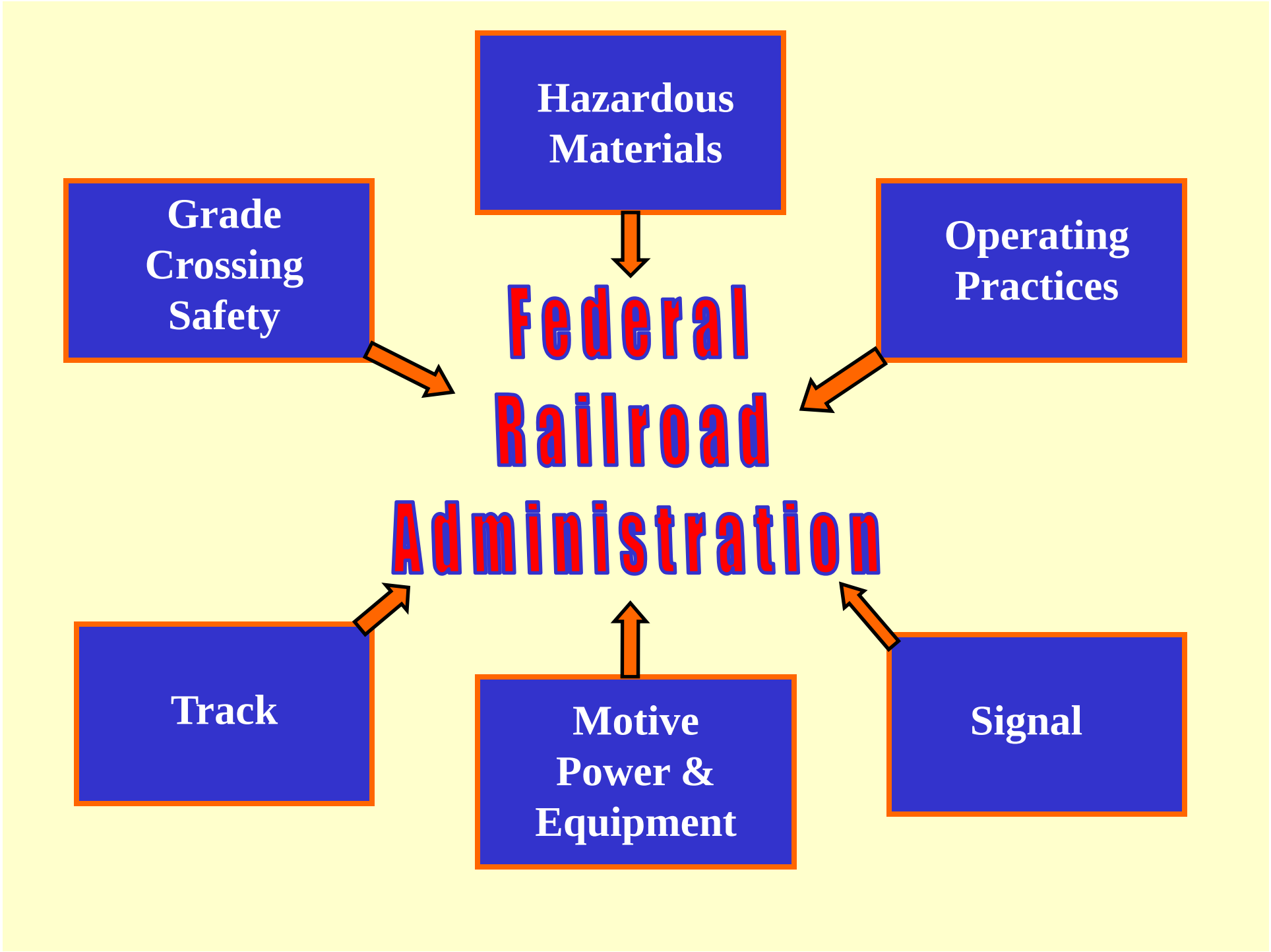
Federal Railroad Administration

- The Federal Railroad Administration (FRA) was created by the Department of Transportation Act of 1966.
- The head of FRA is the Administrator, who is appointed by the President. The Administrator reports directly to the Secretary of Transportation.
- FRA Office of Railroad Safety consists of a headquarters office and eight Regional offices.

Federal Railroad Administration

Organization – *Office of RR Safety – 8 Regions*

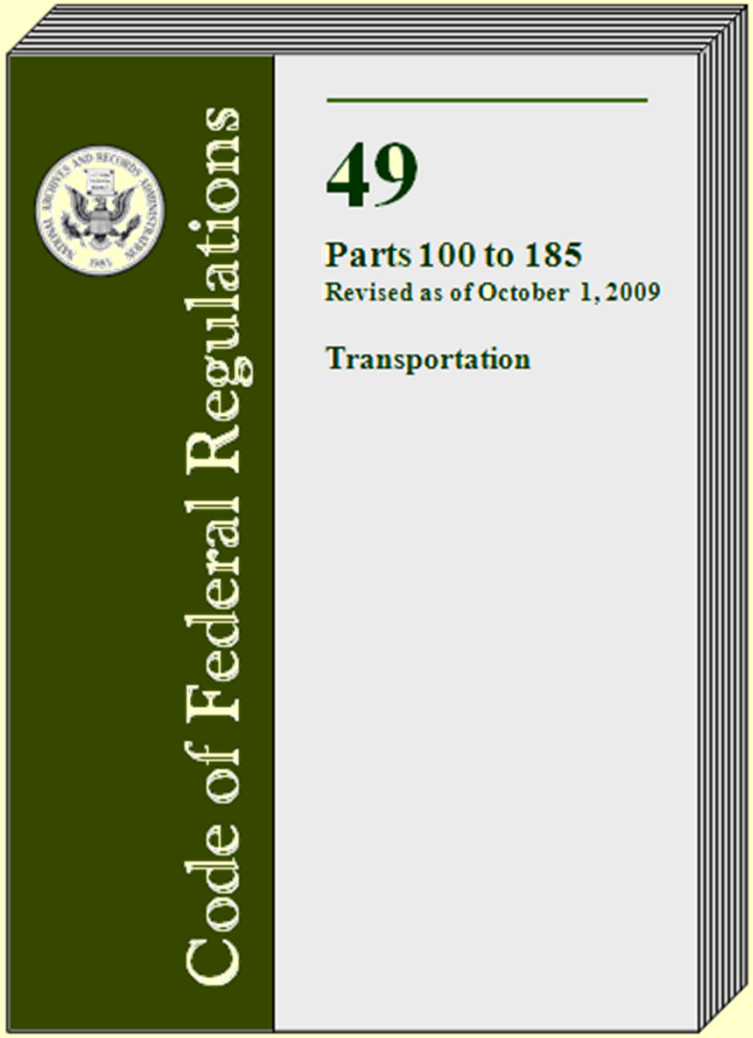



Hazardous Materials
Grade Crossing Safety
Operating Practices
Federal Railroad Administration
Track
Motive Power & Equipment
Signal

Hazmat Safety and Regulatory Activities

- Accident Investigations
- Complaint Investigations
- Special Permit Investigations
- One Time Movement Approvals
- Shipper and Railroad Inspections and Audits
- Regulatory Training Presentations
- Tank Car Forensics

Why do we have safety regulations?



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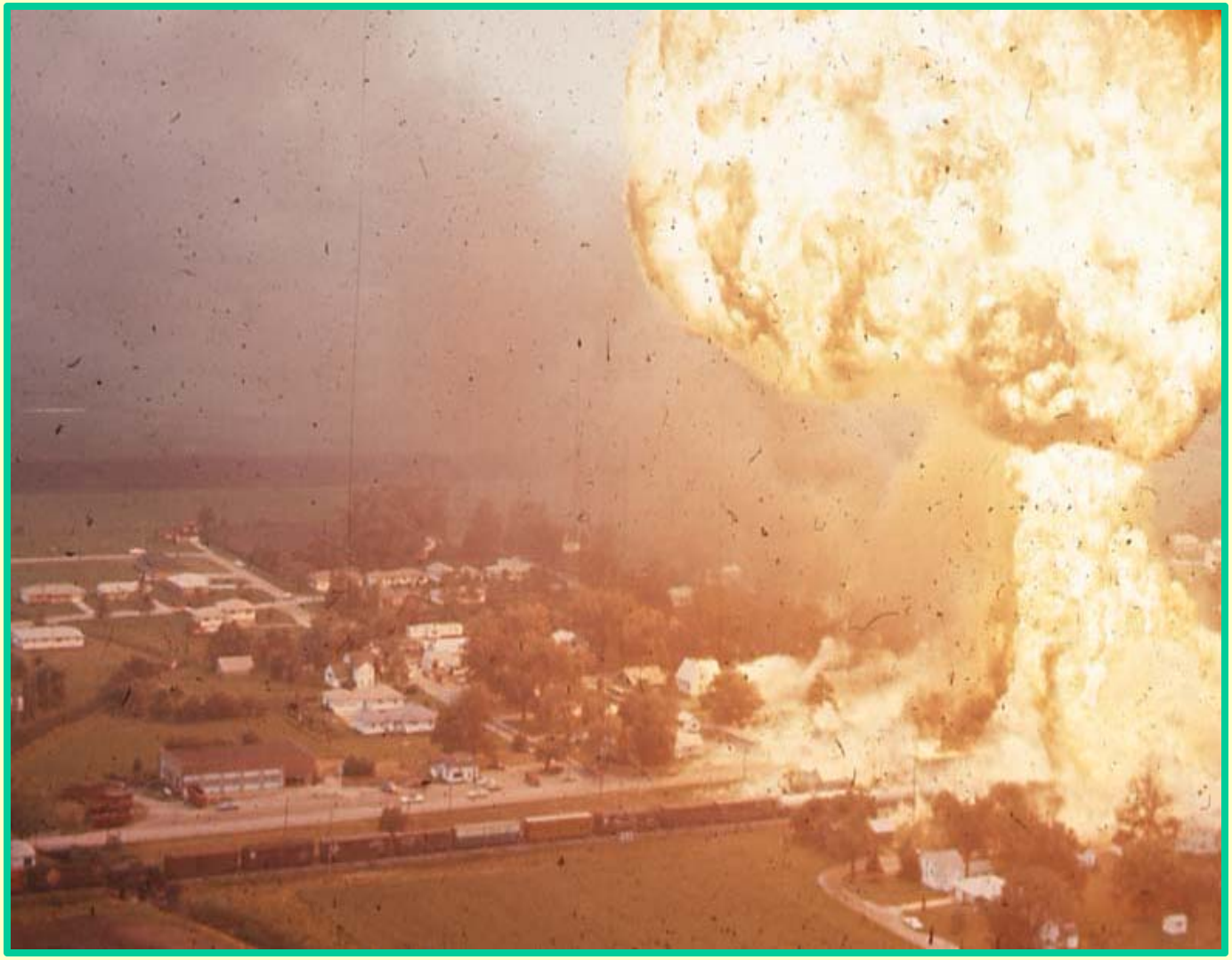
Crescent City, Illinois – June 21, 1970



Federal Railroad Administration

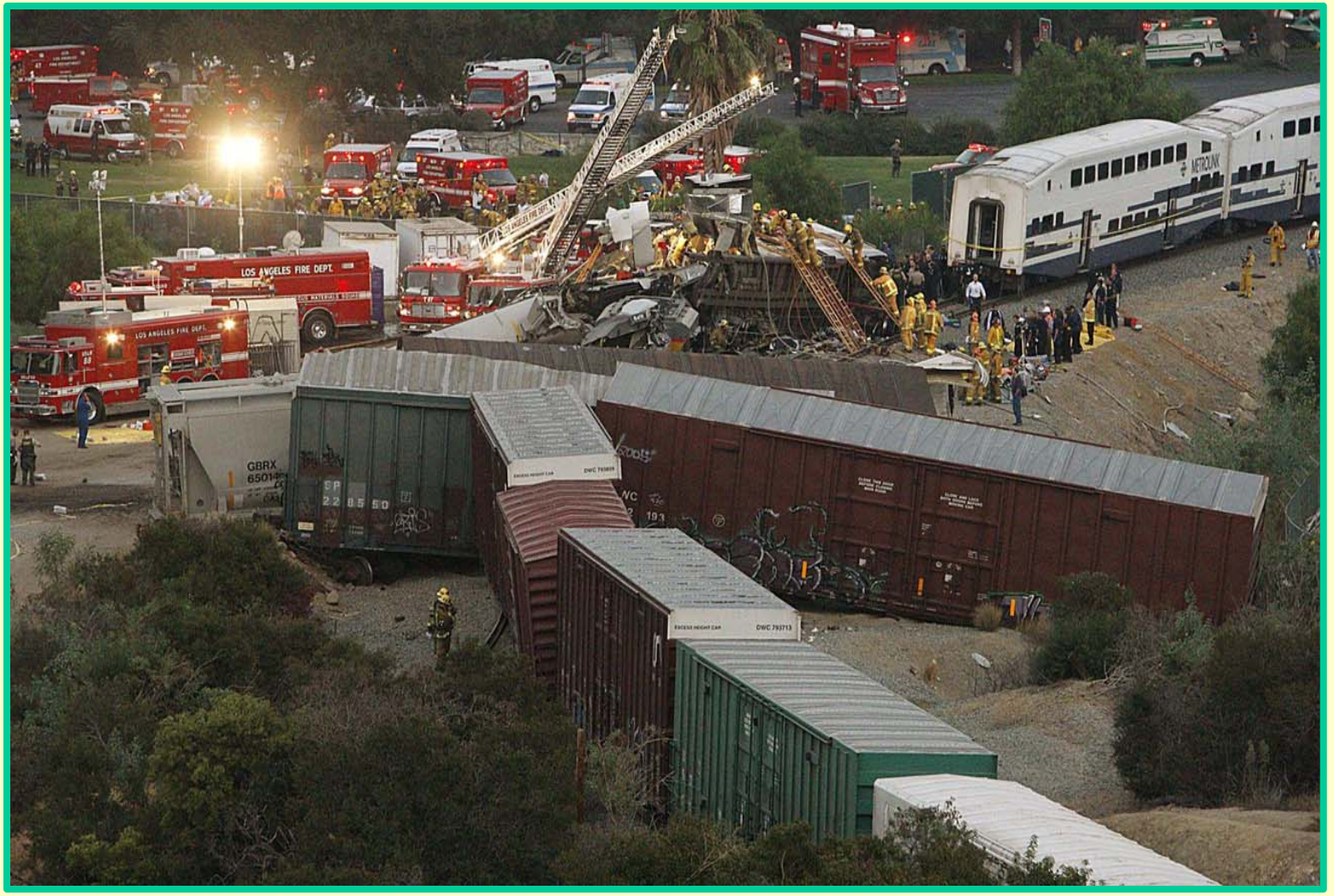
Decatur, Illinois – July 19, 1974

Federal Railroad Administration

Graniteville, SC – January 6, 2005

Federal Railroad Administration

Chatsworth, CA – September 12, 2008



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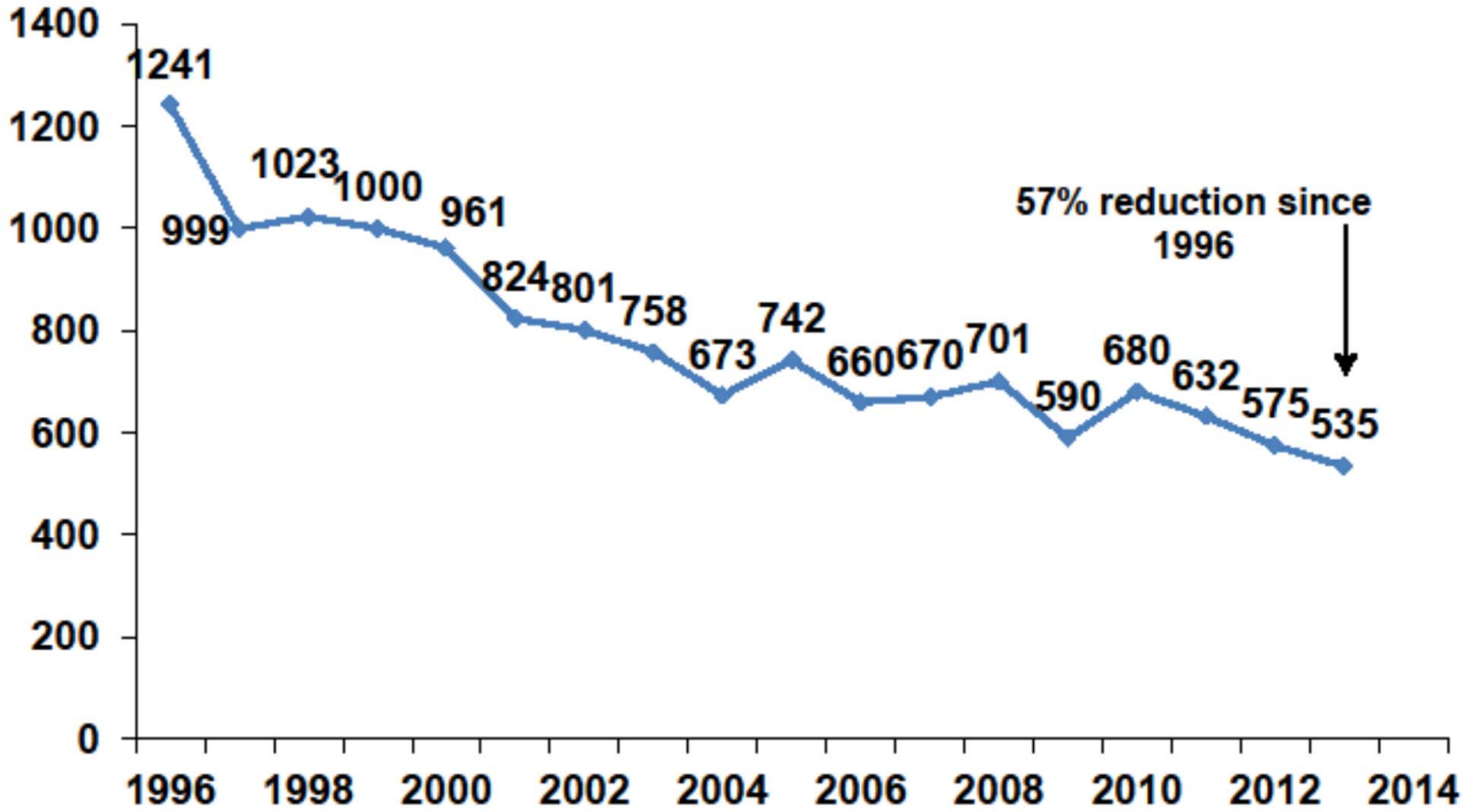
Aliceville, AL – November 08, 2013

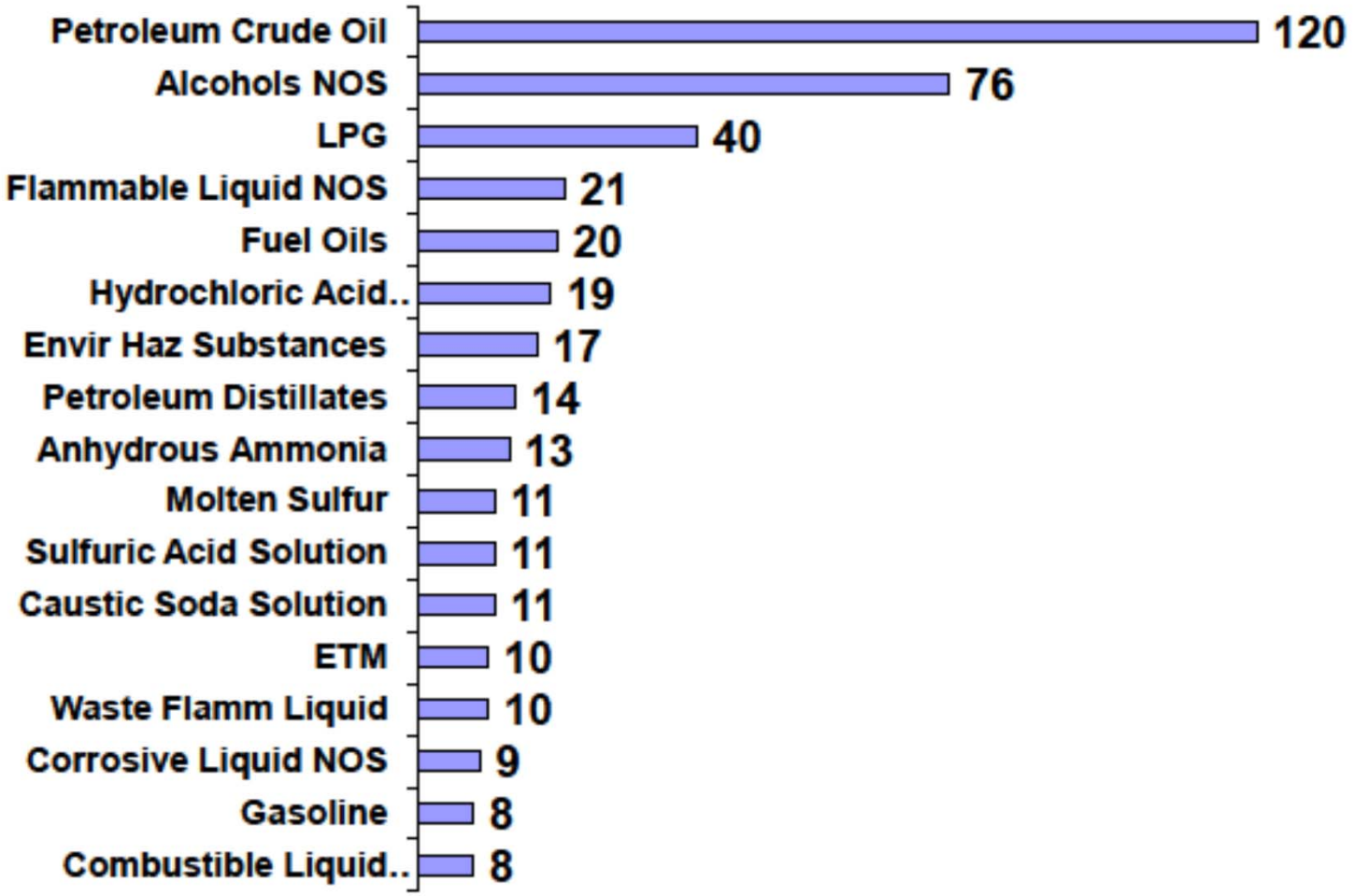
Tank Cars with NARs by Year

US & Canada



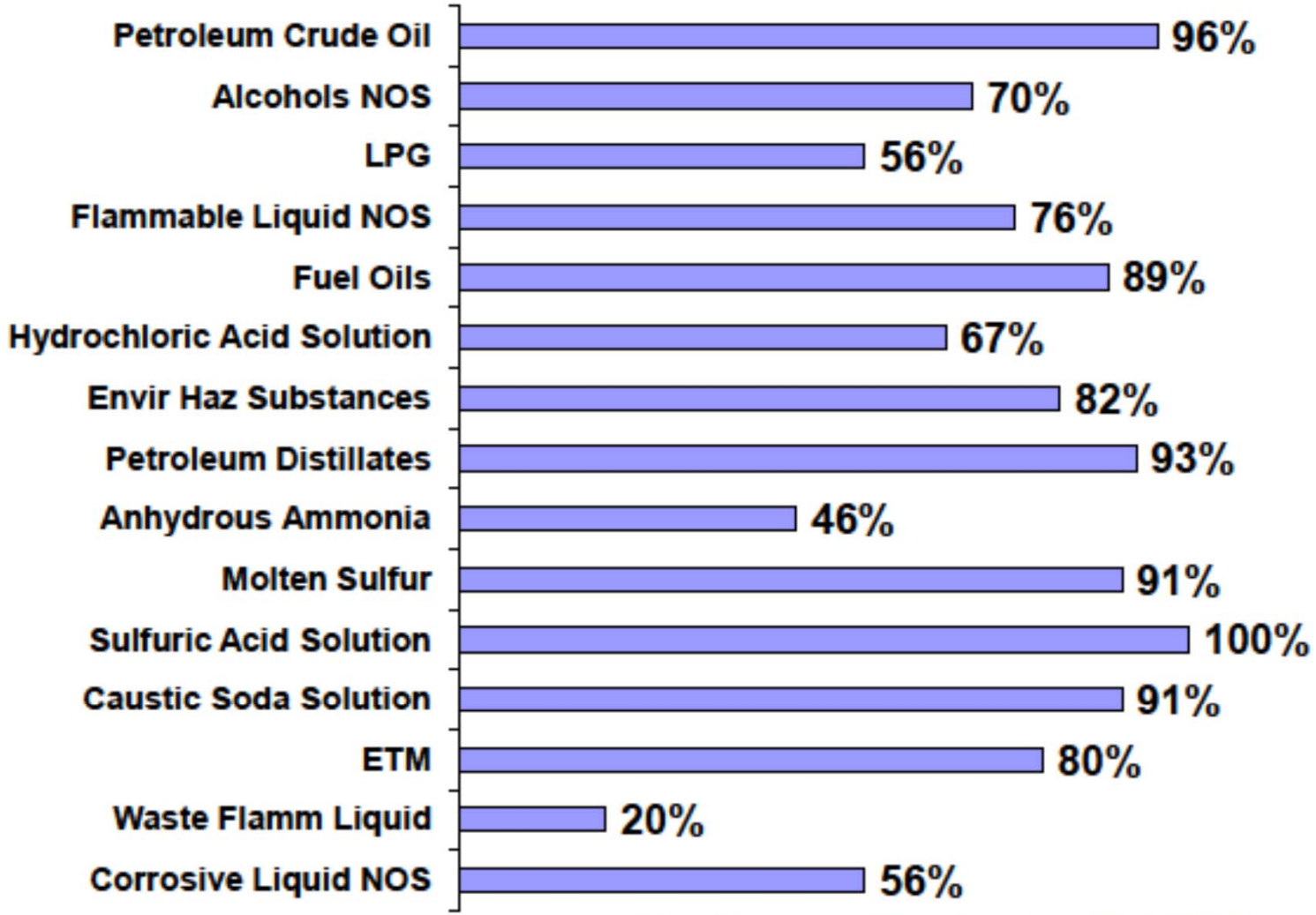
Source: AAR/BOE NAR data

Top Commodities for NARs 2013
US & Canada



Source: AAR/BOE NAR data

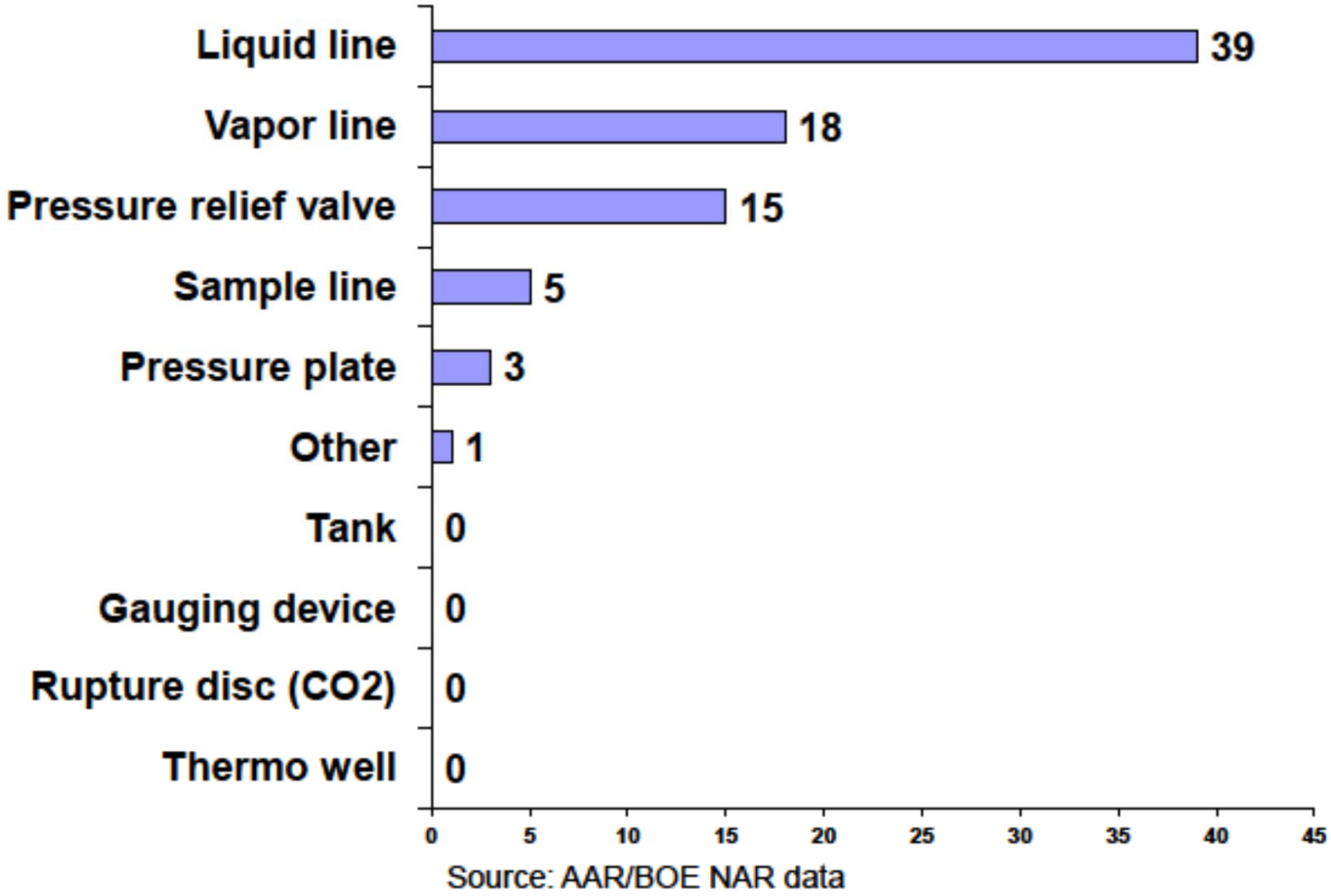
Percent of NARs Occurring on Loaded Trips 2013



Top 15 commodities, in order of total NARs

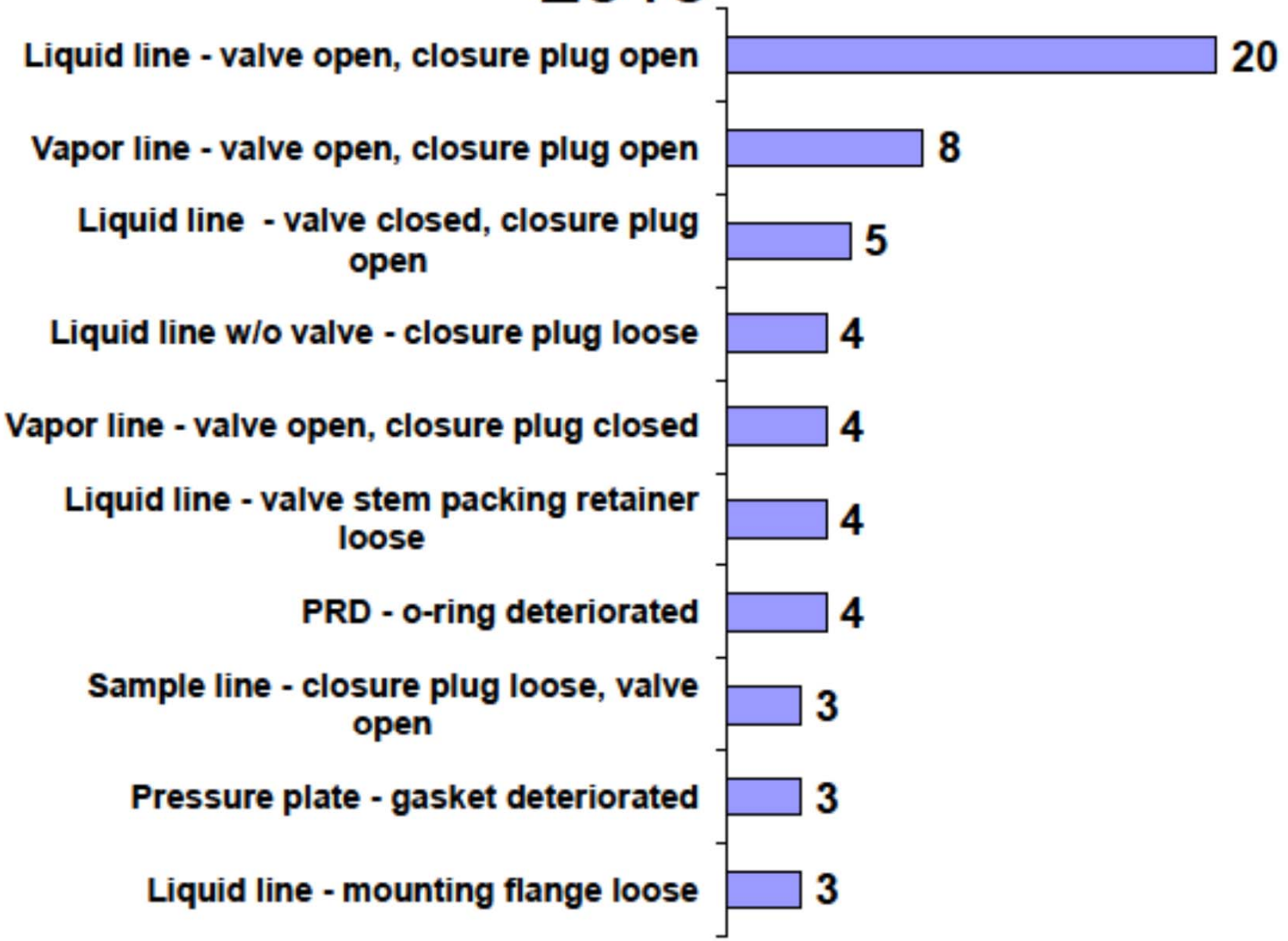
Source: AAR/BOE NAR data

Pressure Car NARs by Component
2013



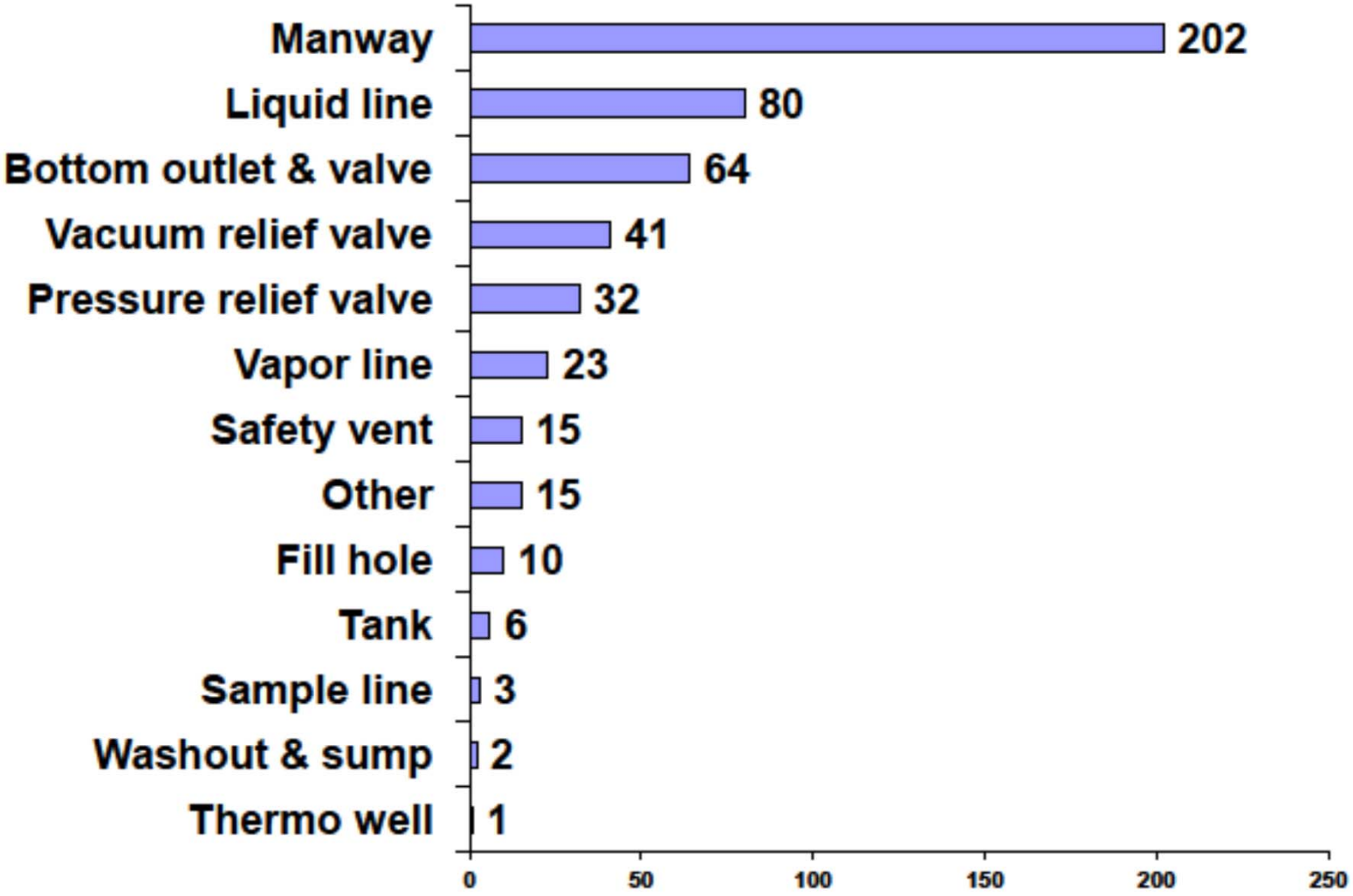
Source: AAR/BOE NAR data

Top Specific Causes for Pressure Cars 2013



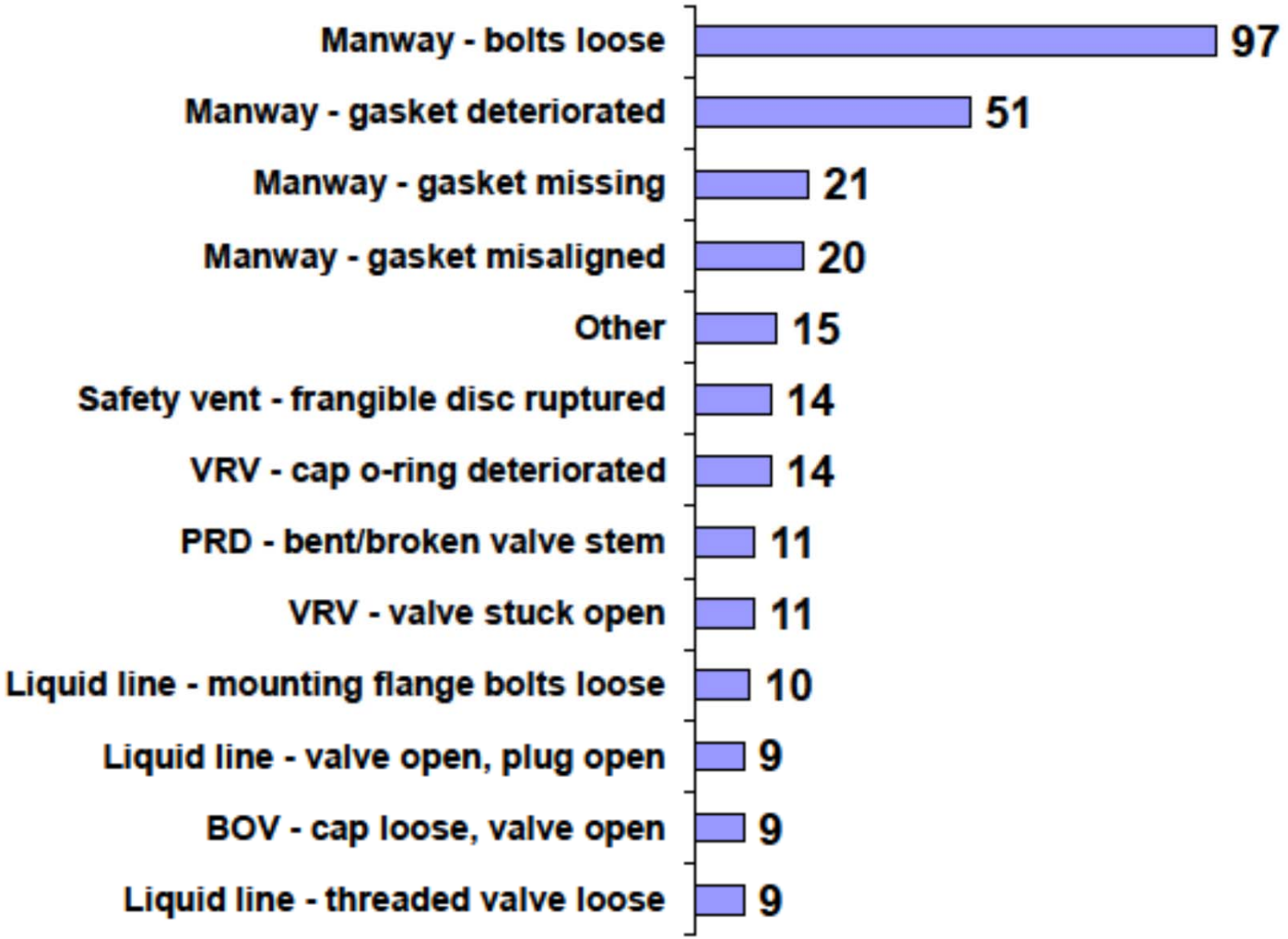
Source: AAR/BOE NAR data

Nonpressure Car NARs by Component 2013



Source: AAR/BOE NAR data

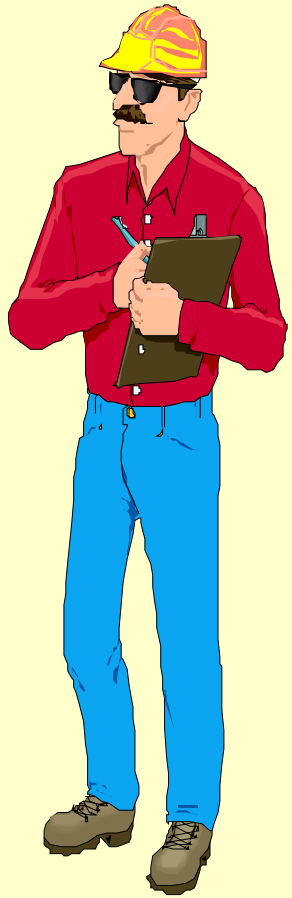
Top Specific Causes for Nonpressure Cars 2013



Source: AAR/BOE NAR data

Hazardous Materials Regulations

- Part 107B Special Permits
- Part 107D Enforcement
- Part 107G Hazmat Registration
- Part 171C Incident Reporting Requirements
- Part 172C Shipping Papers
- Part 172F Placarding
- Part 172H Training Requirements
- Part 172I Security Plan Requirements
- Part 174 Carriage by rail



Hazardous Materials Training

- **General Awareness / Familiarization** - Basic generic hazmat training designed to provide the employee with sufficient information to recognize & identify hazardous materials consistent with the hazard communication standards
- **Function Specific** - Specialized training designed to provide sufficient information, skills & knowledge of federal requirements for an individual to safely function in a particular job
- **Safety** - Designed for employees who handle hazmat, what are the chemical properties
- **Security Awareness** – Employee background checks, trespassers on work site
- **In-depth Security Training** - Safe and Secure in transportation

DOT Hazmat Training

Who may provide DOT hazmat training?

- ✓ Company employees
- ✓ Outside training firms
- ✓ Federal & State agencies
- ✓ Colleges & Universities
- ✓ Any other organization that can meet the objectives of the training requirements
- ✓ Computer-based training programs

Acceptable Methods of Accomplishing the Training & Testing

- ✓ Written
- ✓ Verbal
- ✓ Performance
- ✓ Combination of these

Hazmat Employer must:

- **Provide HM training**
- **Test HM employees**
- **Certify that HM employees have been trained & tested**
- **Develop & maintain DOT hazmat records**

See §171.8 for definition of a Hazmat Employer

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- **173.31(d)(1) – Examination Before Shipping** (1) No person may offer for transportation a tank car containing a hazardous material or a residue of a hazardous material unless that person determines that the tank car is in proper condition and safe for transportation. As a minimum, each person offering a tank car for transportation must perform an external visual inspection that includes:
- (i) Except where insulation or a thermal protection system precludes an inspection, the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, or any other condition that makes the tank car unsafe for transportation;
- (ii) The piping, valves, fittings, and gaskets for corrosion, damage, or any other condition that makes the tank car unsafe for transportation;
- (iii) For missing or loose bolts, nuts, or elements that make the tank car unsafe for transportation;
- (iv) All closures on tank cars and determine that the closures and all fastenings securing them are properly tightened in place by the use of a bar, wrench, or other suitable tool;
- (v) Protective housings for proper securement;
- (vi) The pressure relief device, including a careful inspection of the rupture disc in non-reclosing pressure relief devices, for corrosion or damage that may alter the intended operation of the device. The rupture disc is not required to be removed prior to visual inspection if the tank car contains the residue, as defined in §171.8 of this subchapter, of a Class 8, PG II or PG III material with no subsidiary hazard or the residue of a Class 9 elevated temperature material;
- (vii) Each tell-tale indicator after filling; prior to transportation to ensure the integrity of the rupture disc;
- (viii) The external thermal protection system, tank-head puncture resistance system, coupler vertical restraint system, and bottom discontinuity protection for conditions that make the tank car unsafe for transportation;
- (ix) The required markings on the tank car for legibility; and
- (x) The periodic inspection date markings to ensure that the inspection and test intervals are within the prescribed intervals.

Federal Railroad Administration

- **173.31(d)(2) –** Closures on tank cars are required, in accordance with this subchapter, to be designed and closed so that under conditions normally incident to transportation, including the effects of temperature and vibration, there will be no identifiable release of a hazardous material to the environment. ln any action brought to enforce this section, the lack of securement of any closure to a tool-tight condition, detected at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car. That presumption may be rebutted by any evidence indicating that the lack of securement resulted from a specific cause not within the control of the offeror.

- **173.31(g) Tank car loading and unloading**. When placed for loading or unloading and before unsecuring any closure, a tank car must be protected against movement or coupling as follows:
- (1) Each hazmat employee who is responsible for loading or unloading a tank car must secure access to the track to prevent entry by other rail equipment, including motorized service vehicles. Derails, lined and locked switches, portable bumper blocks, or other equipment that provides an equivalent level of security may be used to satisfy this requirement.
- (2) Caution signs must be displayed on the track or on the tank cars to warn persons approaching the cars from the open end of the track and must be left up until after all closures are secured and the cars are in proper condition for transportation. The caution signs must be of metal or other durable material, rectangular, at 30.48 cm (12 inches) high by 38.10 cm (15 inches) wide, and bear the word “STOP.” The word “STOP” must appear in letters at least 10.16 cm (4 inches) high. The letters must be white on a blue background. Additional words, such as “Tank Car Connected” or “Crew at Work,” may also appear in white letters under the word “STOP.”
- (3) At least one wheel on the tank car must be blocked against movement in both directions, and the hand brakes must be set. If multiple tank cars are coupled together, sufficient hand brakes must be set and wheels blocked to prevent movement in both directions.

Federal Railroad Administration

- **§174.50 Nonconforming or leaking packages.**
- A leaking non-bulk package may not be forwarded until repaired, reconditioned, or overpacked in accordance with §173.3 of this subchapter. Except as otherwise provided in this section, a bulk packaging that no longer conforms to this subchapter may not be forwarded by rail unless repaired or approved for movement by the Associate Administrator for Safety, Federal Railroad Administration. Notification and approval must be in writing, or through telephonic or electronic means, with subsequent written confirmation provided within two weeks. For the applicable address and telephone number, see §107.117(d)(4) of this chapter. A leaking bulk package containing a hazardous material may be moved without repair or approval only so far as necessary to reduce or to eliminate an immediate threat or harm to human health or to the environment when it is determined its movement would provide greater safety than allowing the package to remain in place. In the case of a liquid leak, measures must be taken to prevent the spread of liquid.

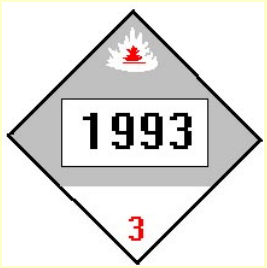
Visibility of Placards

Readily visible !

Securely attached/affixed or placed in a holder

Clear of appurtenances & devices such as ladders

Located clear of dirt & water from wheels



Maintained to preserve the format, legibility & color

Displayed horizontally, reading from left to right

Located clear of any other markings


DOT MA100W3
STATION STENCIL
QUALIFIED
DUE
TANK QUALIFICATION
TICX
2010
2020
THICKNESS TEST
TICX
2010
2015
SERVICE EQUIPMENT
RCR-2
2010
2020
PRD: VENT
165 PSI
LINING:
RCR-2
2010
2020
88.B.2 INSPECTION
TXIX
2010
2020
STUB SILL INSPECTION
TXIX
2010
2020
RUBBER LINED TANK
LINING: POLYMERIC 1099 1/4" BUTYL PAD
APPLIED: 08/10 RCR-2
SPARKTEST 2010 RCR-2
DIP TUBE 121 1/2 "
ACID
1789
8

Placard #1

Professional made placard with the wrong hazard class. UN1993 is a Class 3 Flammable Liquid


Questions ?
UTLX 667413


The End